SIEMENS

Display

TD

Replacements of Parts

Display

19" Color TFT Monitor (DSC 1904-D)

Valid for Part No. 086 75 402
Valid for Part No. 086 81 657

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Safety Information

Assuming a complete replacement, there are no contact points for line power, etc.

NOTE

ARTD-002.732.17.. (Safety-technical Regulations for Installation and Repair) must be observed.

⚠WARNING

Certain components inside the units are under high voltage!

If there is contact with these components, it can cause damage, serious bodily injury or death.

➪ **Do not open the monitor housing; this is not necessary in a service situation.**

⚠WARNING

A damaged power cable can lead to fire or electric shock!

If these components are operated with a damaged power cable, it can cause damage, serious bodily injury or death.

➪ **Use only power cables that are in good condition! When disconnecting the power line, hold the power cable only by the connector.**

⚠WARNING

If objects are inserted into the housing, this can cause electrical shock.

This can cause damage to the unit, to other damage, serious bodily injury or death.

➪ **Do not insert objects into the housing!**

⚠WARNING

When handling connection cables, no contact with the patient may be made.

This can cause damage, serious bodily injury or death of the patient.

➪ **Do not connect the unit in the patient area!**

Monitor Remarks

- A laptop is not required for adjustment. All adjustments can be performed in an on-screen menu, accessible using the push-buttons (front of frame).
- Power switch:

  The TFT monitor has a power switch; seen from the front, this is at the bottom left, behind the front panel.

TFT Monitors 86 75.402 / 86 81.657

NOTE **In a replacement situation, only the same Part Number may be used again.**

- The DSC 1904-D (model designation) is a high-resolution 19" color TFT monitor (48 cm).
- There are two versions of this model:
  - **86 75 402** => is shipped with a base and connection cables.

    NOTE: with this Part Number, the **video ground <=> protective ground are not separate!**
  - **86 81 657** => is shipped without a base.

    NOTE: with this Part Number, the **video ground <=> protective ground are not separate!**
- OSD operation is performed using the push-buttons located at the bottom right of the front panel.

Fig. 1: DSC 1904-D front

Pos. 1 Power switch on rear

Pos. 2 On-screen menu buttons

Technical Data

Power Supply	Voltage range => 100V to 240V, +/- 10% Power line frequency => 47Hz to 63Hz Power consumption => < 75W
Inputs	**DVI Socket (29-pole):** => input for DVI analog signal or DVI digital signal. **Sub-D Socket (15-pole):** **Level:** Video level: 0,5 ... 1.00 Vpp Sync level: 0,2 ... 0.3 Vpp
Resolution	max. 1280 x 1024 (full format)
Background Brightness	280 cd/m^2 typical Status when shipped: 137 cd/m^2 with use of the video norm: 1280 x 1024/75 Hz VESA, 700mV B-Signal.
Contrast Ratio	450 : 1 typical
Climate	**Transport and Storage (in original packaging):** Ambient temperature -20 to +60°C Temperature gradient <5°C/h Relative humidity max. 75% at +25°C, no condensation. Pressure 1040 to 674 hPa **Operation:** Ambient temperature +5 to +40°C Temperature gradient <5°C/h Relative humidity max. 80% at +30°C, no condensation. Air pressure 1040 to 674 hPa
Installation	Heat dissipation is achieved by "natural" convection; a fan is not installed. The free setup height as well as the side and rear distance must be at least 100 mm. However, installation in the DCS is permitted.
Weight	8.7 kg with base

Repair / Troubleshooting

NOTE

- **In a malfunction situation, the TFT monitor is only completely replaced.**
- **For replacement part numbers, see the SPC (Spare Parts Catalogue).**
- **Every defective monitor must be returned with an exact description of the malfunction. Without a description of the malfunction, it is virtually impossible to find sporadic and/or temperature-related effects or even system-related causes.**
- **For more information on adapting to the particular system, see (System-related Adjustments / p. 14).**

Test and Auxiliary Equipment

- All required settings must be performed using the push buttons on the front of the unit.
- SMfit ACT luminous density meter See CB - DOC TD00-000.801.01... (Spare Parts Catalogue).

General Remark Regarding Use of the OSD Menu

Button Functions

TFT Monitor, Part No. 86 75 402 / 8681657

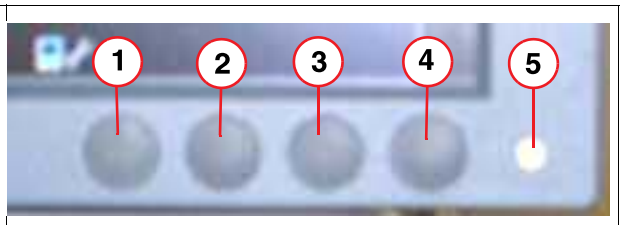

Fig. 2: DSC 1904-D (push buttons)

Pos. 1	Menu
Pos. 2	Up
Pos. 3	Down
Pos. 4	Set
Pos. 5	Power LED

- The status of the TFT monitor is displayed by the power LED. On / OFF / Standby.
- The front buttons are designed without a "designation".
- All required adjustments are made using the push-buttons located on the front frame.
  The push-buttons are blocked when shipped (new system).
- Unlock or lock them as follows:
  Press the SET button 1x (briefly).
  Press the Up button 1x (long).
  The OSD menu can then be selected using the Menu button.
- The OSD menu can also be started without an input signal.

OSD Menu

Tab. 1 Button functions in the OSD menu

Button(s)	Action
Menu	Selection of the OSD / menu item
up (+)	Open the menu item, a sub menu can be recognized by the fact that the menu title is highlighted. Set the value up or to the right.
down (-)	Set the value down or to the left.
Set	Close the menu item (press one level higher 1x).

Tab. 2 Blocking/Unblocking the OSD Menu

Function	Action
OSD Menu block or enable	Press the Set button 1x (briefly) + the Up button (long). The OSD may not be opened to block or release the OSD! If opened, first exit the OSD using "Undo". If the OSD is blocked, only the input signal can be switched with the Up and Down buttons.
Select Service Level 2.	To get to the Service Level 2 menu, the following procedure is necessary: • Select the OSD menu. • Select Service Level 2 with the Menu button. • Open the Service Level 2 menu by pressing the Up button 1x and the Down button 2x. In service level 2, expanded adjustments can be performed.
Adjustment Values Save	Press the Set button as often as required until the “Undo” menu item appears. Any changes made are accepted with "Accept changes”. The "new" settings are rejected with "Reject changes”. Selection is made with the "Menu” button. Select with the “Up” button.

Tab. 3 OSD Menu

Menu	Brightness / Contrast	Brightness	Adjustable
		Contrast	Adjustable
		Backlight	Adjustable
		Color	Selection => 2
		Set user color	not enabled
	Position / Zoom	H-Position	Adjustable
		V-Position	Adjustable
		Zoom	Selection => Fill Screen
	Picture source	Source selection	Not needed; selection is automatic
	Auto functions	Auto Brightness Contrast	Use only if the monitor is completely incorrectly adjusted. In conclusion, the adjustment must be performed per (System-related Adjustments / p. 14)!
		Auto Position Phase Frequency	Auto adjustment of Size / Position / Phase and Frequency.
		Execute selected auto functions	Start the selected auto functions.

	Language	German/English	Selection => English
	Others	Frequency / Phase	Manual adjustment of frequency and phase.
		Sharpness	Selection => 3 Active only if the FBAS and/or the S-Video input is used.
		OSD Settings	If required, the position and the "transparency" of the OSD menu can be set here.
		DPMS Settings	Selection On
		Status	Status display of the monitor (e.g. temp., operating hours.....)
	Service level 2	Calibration	Factory set.
		User Settings	Factory set! It is possible to return to the factory setting under "Reset User settings" in this screen. All adjustments (B/KC/Phase/Frequency) must then be repeated!
		Test and Reset	"Reset to factory defaults" **may not be used!** If selected, original parameters are downloaded.
		Tolerance	Factory set.
		Others	Factory set.

Troubleshooting

- **General:**

  Every defective TFT monitor must be replaced completely.

  Fuses:

  If a fuse is defective, the TFT monitor must be replaced. A fuse responds only if there is an error (in the TFT monitor). Because of this, replacing a fuse is not reasonable.

- **Troubleshooting:**

Malfunction	Possible Cause	Solution
TFT monitor displays no image, power LED is off.	Fuse defective. Power cable not plugged in or line power missing.	1. Fuse okay, line power present. 2. Replace the TFT monitor.
TFT monitor displays no image, power LED is on.	No video/synchronous signal (cable or video source). Inputs incorrectly plugged in, with a new installation.	1. Video/synchronous signal present. 2. Replace the TFT monitor.
Unclear image, defects in vertical lines	Frequency and/or phase incorrectly set. Disturbances in the video signal.	1. For frequency / phase setting, see (Adjustment / p. 15). 2. Make sure that the video signal has no disturbances. 3. Replace the TFT monitor.
Other malfunctions (sporadic)	Plug-in connection(s) loose.	1. Make sure that there is not a "control problem" (line power/video). 2. Replace the TFT monitor.
Required contrast no longer reached?	BA signal is too low.	1. The **BA** signal must be at least 0.5V, otherwise “full control” is no longer ensured. 2. An B/C adjustment under (Adjustment / p. 15) makes no improvement. 3. Replace the TFT monitor.

SP Applications

ARCADIS Systems

NOTE

- **The TFT monitor must be switched on 20 minutes prior to beginning the adjustments!**
- **All adjustments must be performed at the "original" installation location (e.g. monitor trolley).**
- **The adjustments are performed in the "Screen Manager" menu. For selection and use of the menu, see (General Remark Regarding Use of the OSD Menu / p. 9).**

General Information

The Service menu is set preferably to English and is shipped in English. If needed, this menu can be set to German for setting the parameters.

For adjustment, the monitors and the image system must be completely cabled and the ASPIA image system must be started up.

Perform or check the adjustments to be made in the individual menus. Menus not mentioned do not need to be checked. If not otherwise stated, perform the settings/checks on all installed monitors.

Trolley:

There are always two monitors of the same type on the trolley.

1 => left monitor => Live image

2 => right monitor => Reference image

Fig. 3: Monitor Trolley

Pos. 1	left monitor (live image)
Pos. 2	right monitor (reference image)

Adjustment

NOTE	**The monitors were preadjusted by the supplier. The following adjustments must performed only if necessary. The corresponding Operating Instructions included in the shipment on CD.**

Adjustment Procedure

- **Auto Setup**

  Performing Auto Adjust:

NOTE	**Auto Adjust must be performed using a predefined test image.** **To select the test image:** • **Service => Utilities => parameters => Explorer (enter).** • **Under C: => My Computers => Testimages => select TFT Autoconfiguration.**

  a) If needed, deactivate the Block menu, see (Tab. 2 / p. 10)

  b) Perform Auto Adjust:

  - Menu => Auto functions =>

    Auto Brightness Contrast => Off

    Auto Position Phase Frequency => On

    Execute selected auto functions (select) => Auto Adjust is selected with the Up (Value Up) button.

- **Control/adjustment of brightness/contrast with the SMfit Spotmeter**

  a) Select the ASPIA test image (left menu bar).

  b) **Check:**

  - 0.8, +/-0.2 cd/m^2 must be measurable in the 0% field.
  - In the 100% field, 200 +20/-20 cd/m^2 must be measurable.
  - The 5% field and the 95% field must be visible.

    If the values are not reached, an adjustment must be performed.

  c) **Adjustment:**

  - The adjustment is performed under: Menu => Brightness Contrast
  - Increase the slider for contrast until the 95% field is no longer visible (over-exposed).
  - Lower the slider for contrast again until the 95% field is again visible.

    When doing so, make sure that the visual color impression (color temperature) of the 90% field and the 100% field appear almost equal => with unequal color impression, the contrast should be reduced slightly more.

- Set the slider for "Backlight" in the 100% field to 200 +/20/-80 cd/m^2.

NOTE

120 cd/m^2 should result as the lower limit value.

With dual monitor operation, the difference between the two TFT monitors should be a maximum of $^+$/- 10 cd/m^2.

If 120 cd/m^2 are not attained, the monitor must be replaced.

- Set the slider for "Brightness in the 0% field to 0.8, +/-0.2 cd/m^2.
  The 5% field must still be visible.
- Measure the values in the 100% field and in the 0% field again.
- Repeat the adjustments until the specified values result.

NOTE

After completing the adjustment, the Operation menu must be blocked again, see (Tab. 2 / p. 10)

Monitor exchange

Table application

NOTE

- **The control (analog / digital) of the replacement monitor must not be changed by the monitor exchange.**
- **The article number 086 75 402 is supplied with base, power cable (note: low power socket, no mains plug) and DVI-I cable. Both cables are already connected.**

- If the connected "cables" cannot be used, the "available cables" are connected as described below.

- The "rear" cover must be removed.
  - Put the monitor in the highest position
  - Lever out the rear panel cover using both the recesses, see Pos 1 on the picture. It is "only" latched (snap in).

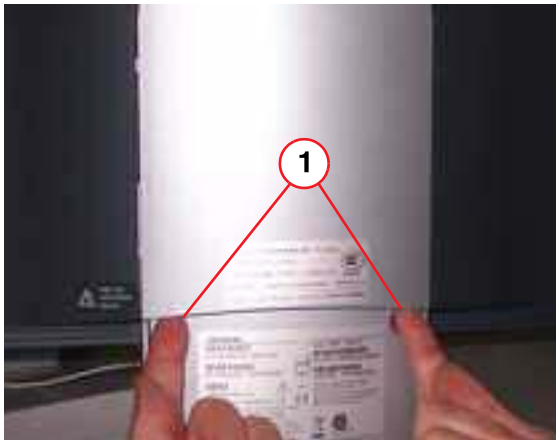

Fig. 4: Disassemble monitor <-> base, first step
Pos. 1 remove back side cover

- The four fixing screws (see Pos 1) must be slackened.

  Do not remove, only slacken!

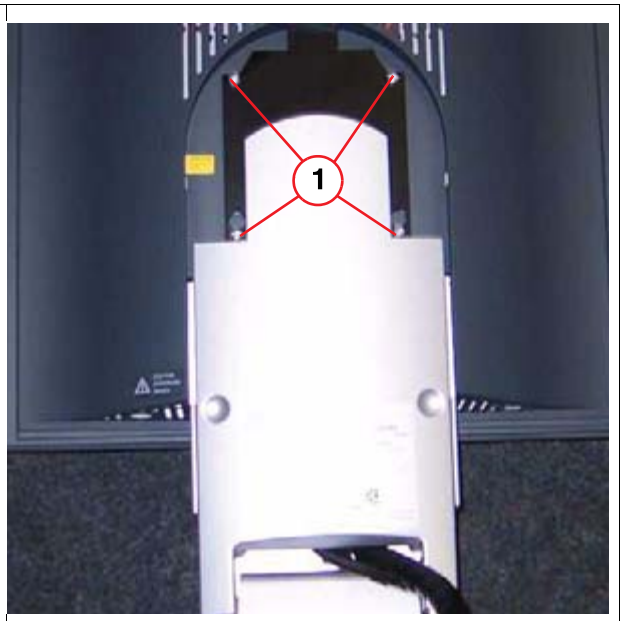

Fig. 5: Disassemble monitor <-> base, second step

Pos. 1 unscrew the 4 screws (not removal)

- The monitor can be lifted upwards, see Pos 1, and separated from the base.

  Note: The connected cables are guided "through" the base and hamper removing the monitor => **CAUTION!**

Fig. 6: Disassemble monitor <-> base, third step

Pos. 1 lift off the monitor

- The cables needed can now be swapped.
- Power cable: If the power cable is replaced, it must be secured again, see Pos 4.
- The cables must be guided through the base, see Pos 6.
- For assembly follow the directions above in reverse order.

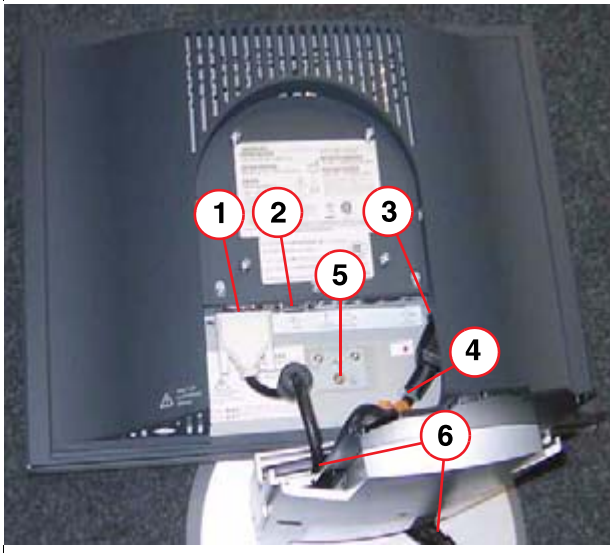

Fig. 7: Disassemble monitor <-> base, third step

Pos. 1	DVI-I connector
Pos. 2	Sub-D connector
Pos. 3	Power connector
Pos. 4	Strain relief for Power line
Pos. 5	Ground connector
Pos. 6	Cable routing (through base)

syngo X - Workplace / syngo MM Workplace

General information

General information about adjustment / operation

- The TFT monitor must be switched on for at least 20 minutes before making the adjustments.
- All adjustments must be made at the original installation location
- All adjustments are made in the "OSD" menu (OSD => on screen display). For using the OSD menu, see (General Remark Regarding Use of the OSD Menu / p. 9)
- Usually, "only" the listed adjustments have to be performed. However, all other adjustments, see (Tab. 3 / p. 11) can be performed if necessary.
- The adjustment is made with the SMFit measuring instrument.

  When performing the measurement, make sure that the measuring sensor does not exert any pressure on the panel surface. Otherwise, panel damage cannot be ruled out!
- If used in systems with the Syngo platform, make sure that the "window values" are fully opened during the adjustment.

Adjustment

NOTE

The monitor can be analog or digital controlled. Another adjustment process is produced depending on the control.

The control must be clarified before the adjustment:

in the OSD menu (if necessary deactivate the OSD lock with 1 x Set (short) and 1 x Up (long) => Source => the current control is highlighted.

- **If the control is analog (Sub-D or DVI), continue with (Settings for analog control / p. 20)**
- **If the control is digital (DVI digital), continue with (Settings for digital control / p. 23)**

Settings for analog control

Frequency / Phase (Focus)

NOTE

- **With this adjustment, it is ensured that the picture is correct for the display mask.**
- **Incorrect adjustment is manifested as an out-of-focus picture.**

Selecting the Test Pattern

- The adjustment is made on the "Viewing" tab.
- Select the SMPTE test patterns under:

  Patient => Browser => Local Database => Service Patient => Technical Images XA.

  - If the test image is not available in the Patient Browser, it can be loaded as follows:

    Start => Leonardo _> Load Service Images => after the installation, a "refresh" must be performed in the Patient Browser otherwise the "new" patient is not visible.

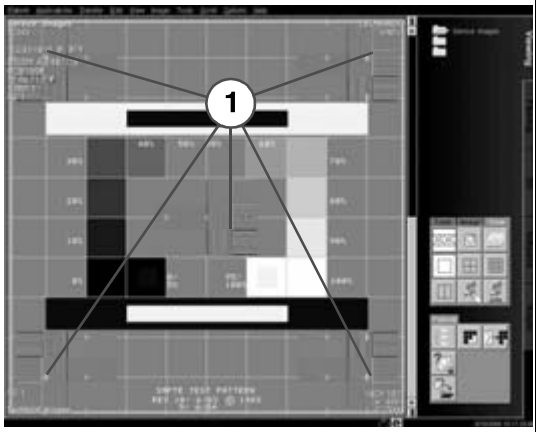

Fig. 8: Leonardo SMPTE
Pos. 1 High frequency resolution

Auto Adjust

OSD Menu => **Auto functions** =>

Set **Auto Brightness Control** => to “**Off**” (green dot corresponds to selected) =>

Set **Auto Position Phase Frequency** => to “**On**” =>

“ Select **Execute select auto function**” =>

“Press the **Up**” button (Start Auto Adjustment).

Check after Auto Adjustment:

- Geometry:

  If the geometry (e.g. H-size) is not displayed correctly, a manual adjustment of the H and V size can be performed in the OSD menu under Position / Zoom.

  The Zoom selection is set to "Fill Screen".

- Resolution:

  The high resolution line groups are, e.g. not visible without interference. then the phase / frequency adjustment can also be performed manually as described below.

  If the line groups are visible without interference, proceed to (Brightness / Contrast Adjustment / p. 22).

Phase / Frequency Adjustment

- OSD main menu => Others
- Frequency Adjustment:

  Adjust the image width so that the image content fills the entire panel screen and no content is cut off.

  If adjustment is correct, no vertical lines are visible in the line groups.

- Phase Adjustment:

  Set the regulator for phase so that no horizontal lines are visible in the line groups and the "sharpness" is the same for all line groups.

Brightness / Contrast Adjustment

Selecting the Test Pattern

- The test pattern that is visible on the right is used for the brightness / contrast adjustment.

  The test images can be seen under:

  Patient => Browser => Local Database => Service Patient => Technical Images XA.

  .

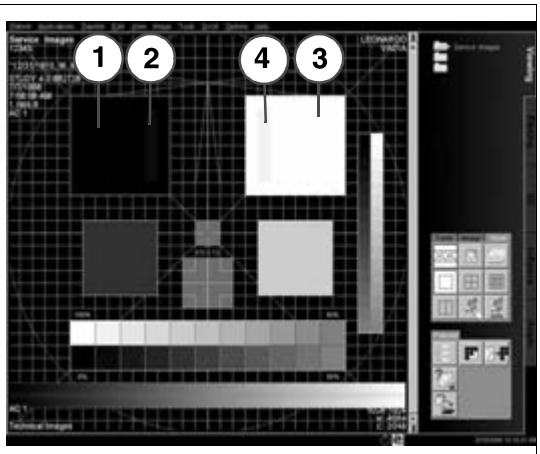

Fig. 9: Leonardo Brightness/Contrast

Pos. 1	Black field (0% white)
Pos. 2	5% field
Pos. 3	White field (100
Pos. 4	95% field

NOTE

The window values for the test pattern must be fully opened for the adjustment!

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Brightness / Contrast Adjustment

- Adjustment is performed in the **OSD menu under Brightness / Contrast.**
- Adjustment:
  - Set the slider for “**Brightness**” to “**30**“.
  - Set the slider for "**Contrast**” to the maximum.
  - Use the slider for "**Backlight**” to adjust to **135cd/m**^{2}, + 10 /- 5cd/m^2 in the 100% field.
  - Use the slider for "**Brightness**” to adjust to **0.3cd/m**^{2}, +/-0.15 / -0 cd/m^2 in the black field.

    IMPORTANT: The 5% field in the black area must still be visible!
  - Lower the slider for Contrast until the 95% field (in the 100% field) is just visible.

- Check the brightness value in the black field, adjust it if required.

  If it needs to be "readjusted", the contrast value must be checked again, and if needed, adjusted.

- Final Check: All steps must be detectable in the test pattern. If not, repeat the adjustment.

- Saving the new adjustment values:

  Press the **Set** button as often as needed until the "**Quit OSD**" menu appears.

  Select "**Accept changes**".

  Select the "**Up key**" (to exit the OSD menu).

- **The control keys must be locked [1 x Set (short) 1 x Up (long)**]!

Settings for digital control

NOTE

The size / position and the phase / frequency are automatically displayed correctly for digital control.

However, the brightness / contrast adjustment must be checked / adjusted.

Selecting the Test Pattern

- The adjustment is made on the "Viewing" tab.
- The test pattern that is visible on the right is used for the brightness / contrast adjustment. The function is started with:

  Patient => Browser => Local Database => Service Patient => Technical Images XA.

  - If the test image is not available in the Patient Browser, it can be loaded as follows:

    Start => Leonardo _> Load Service Images => after the installation, a "refresh" must be performed in the Patient Browser otherwise the "new" patient is not visible.

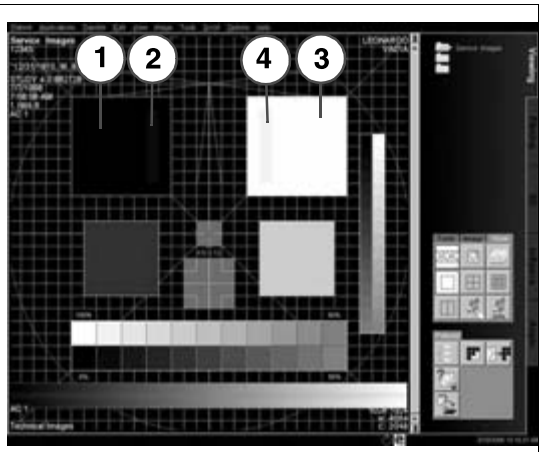

Fig. 10: Leonardo Brightness/Contrast

Pos. 1	Black field (0% white)
Pos. 2	5% field
Pos. 3	White field (100
Pos. 4	95% field

NOTE

The window values for the test pattern must be fully opened for the adjustment!

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Brightness / Contrast Adjustment

- Adjustment is performed in the **OSD menu under Brightness / Contrast.**
- Adjustment:
  - Set the slider for “**Brightness**” to “**50**“.
  - Set the slider for “**Contrast**” to “**50**“.
  - Use the slider for "**Backlight**” to adjust to **135cd/m**^{2}, + 10 /- 5cd/m^2 in the 100% field.
    Important: The 95% field must be visible.
  - Check the brightness value in the black field; it must be **0.3cd/m2** +0.15 / -0 cd/m2. If necessary, adjust the "**Brightness**" with the slider (only if the tolerance values are not complied with).
    IMPORTANT: The 5% field in the black area must be visible!
  - Final Check: All steps must be detectable in the test pattern. If not, repeat the adjustment.
  - Saving the new adjustment values:
    Press the **Set** button as often as needed until the "**Quit OSD**" menu appears.
    Select “**Accept changes**”.
    Select the “**Up key**” (to exit the OSD menu).
- **The control keys must be locked [1 x Set (short) and 1 x Up (long)**]!

Section	Section	Changes
System dependent settings AX application	Completely	rewritten.